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ABSTRACT

A set of procedures for coding internal state words (those words representing mental states and perceptual experiences), developed for application to data on the language of young children and those with whom they converse, is described in this report. The report first discusses the rationale for studying cultural variation in vocabulary use, the cognitive consequences of vocabulary growth, and the rationale for studying internal state words. The following procedures used for coding words are then described: determination of the proportion of each speaker's total tokens at home and at school that were internal state tokens and the proportion that occurred in each of three domains (cognitive, perceptual, and affective), the coding of the tokens for "semanticity" (the relation of the word's meaning to the meaning of the utterance as a whole), and the assignation of a dictionary definition to each semantic token. Sample dialogues between children and adults are then presented to illustrate possible categories to which mental state words can be assigned. The report includes numerous tables of data on such topics as categories of internal state vocabulary, distributions of internal state tokens for individual children, and categorizations of specific internal state words used. (GT)

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Technical Report No. 115

INTERNAL STATE WORDS: CULTURAL AND SITUATIONAL VARIATION IN VOCABULARY USAGE

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Internal State Words:

Cultural and Situational Variation in Vocabulary Usage

Introduction

The purpose of this paper is to describe a set of procedures for coding words of internal report. The motivation for the development of this set of procedures was to apply them to a corpus of data assembled by William S. Hall on language used in ten temporal situations by young children (4½ to 5 years of age) and those with whom they conversed during the course of a two day period (see Hall, 1978). The data from the children were audiotaped in their homes and in their school. The total number of subjects recorded was 40. One-half of the subjects (hereafter referred to as target children) were black and the other half white. The children were divided equally in both racial groups into middle and lower social classes.

As originally designed, the Hall study (Hall, 1978) focused on nine questions. The particular hypothesis guiding the work behind the development of this set of coding procedures was that cultural variation in vocabulary usage has certain consequences for children's cognitive development and for their performance in school. Thus these coding procedures were designed to capture important differences in the kinds of cognitive activities that characterize the everyday worlds of home and school for the children in the study.

The procedures developed here are concerned with a single domain of vocabulary items which may have critical functions in cognitive activities--those words representing mental states and perceptual experiences. These words are of considerable interest in view of current theories of "meta" cognition which assume that consciousness of one's knowledge, of cognitive processes, of attentional processes, of perceptions, and of feelings can play a critical role as higher-level "executor" of lower-level processes.

In sections to follow we will be describing our procedures for the investigation of variation in use for those words. Below, however, we present a brief discussion of the rationale for studying cultural variation in vocabulary use.

Cultural Variation In Vocabulary Use

Three Consequences of Cultural Variation

Cultural variation in the function and uses of language has important consequences for speakers of variants, particularly with respect to educational performance. Three consequences can be proffered: social, cognitive, and acquisition of school skills.

The social consequences of a variant way of using language can affect teacher-pupil as well as peer relationships. The consequences of a teacher's attitude towards a given dialect--including vocabulary differences--are profound. For example, it can affect his/her initial judgment about how smart a child is likely to be, or how he will fare as a learner, how he will be grouped for instruction, and how his contributions in class will be treated. This, in turn can affect the child's attitude about himself

as a school learner, his willingness to participate, his expectations about results of his participation, etc. There are also consequences of variation in language use with respect to one's standing with peers. It is often suggested that high status in peer and school settings requires opposing rules for using or not using a variety of speech.

Also at issue in the present work is whether different patterns of language socialization in the home--in this case, vocabulary use--have discernible cognitive consequences. Vocabulary differences clearly reflect differences in public access to one's ideas. These differences lead to different opportunities to talk about a given meaning or aspect of meaning, and as a result different speech communities have different access to its members' and others' ideas. At a deeper level, different types of speech might involve different opportunities to engage in certain basic cognitive processes. For example, the process of modification in the case of adjectives or adverbs or the process of subordination in the case of conjunctions could easily be affected by differentially elaborated vocabularies. There is also evidence suggesting that unrecognized differences in vocabulary result in mis-estimates of memory capacity and "general intelligence".

The possible consequences of variants from the school register for the acquisition of school skills may be illustrated for reading and the ability to deal with a kind of meta-behavioral information. In reading, semantic mismatches between reader's word meaning and author's word meaning may affect children's expectations about the gist of the language that

they are reading. Moreover, it is often suggested that different cultures may promote different levels of meta-linguistic awareness, or the capacity to reflect upon language use. Learning to read requires a certain set of meta-linguistic awarenesses, and some cultures may provide vocabulary items which are reasonably isomorphic to these kinds of cognitive processes and which are therefore useful for their development and use in reading. Variation in language socialization may also differentially facilitate or support the child's growing ability to analyze and make analytical statements about certain kinds of behavior which are not always reflected upon in everyday life. Such "meta" behavioral abilities include perceptual awareness (like the ability to analyze a perceptual array into a set of geometrical or mathematical relationships), as well as, behavioral awareness (such as the ability to analyze the emotions of a person or those of a fictional character). Since such analysis is a hallmark of schooling, it is a prime area for analyzing home/school mismatches (see, e.g., Cole & Scribner, 1973).

Examples of Problems in Communication

The potential communications problems that might ensue across cultural boundaries can be illustrated. We have noted above that vocabulary differences among individuals could contribute to variation in ease of public access to one's ideas. Suppose that individual A possesses a more highly differentiated vocabulary within some semantic domain (say color terms) than does B. A knows more types than B. It is possible that B may know and produce much the same set of corresponding meanings (concepts) as does

A, but the lexical tools differ. B's reliance on a smaller set of types (and as well on larger syntactic units such as phrases and clauses) to represent a concept is likely to result in ambiguity and vagueness from A's point of view, and in a less explicit mode of communication than A's. A and B may each also have culturally-specific concepts and beliefs, any of which may or may not have a culturally-specific lexical representation. So if A and B should converse, the mappings of tokens to meanings in any interaction will differ for the two individuals, and misunderstandings are likely to result.

A and B can misunderstand one another then, because one has a less explicit mode of communication, because one has a culturally-specific idea to express, because one uses a culturally-specific vocabulary item. Problems of misunderstanding increase directly with the dissimilarity of their two cultures. The less knowledge which A and B share about their social situation, the less they can depend on their knowledge of the broader context of their interaction to make sense of each other despite lexical misinterpretations, and the more likely that one or both of them will fear social censure for exposing a misunderstanding. The listener may fear that he would appear ignorant (in some circumstances) or implicitly critical of the speaker's competence (in other circumstances). Similarly, the speaker, if he suspects that the listener misunderstands him, may fear that publicly 'repairing' the misunderstanding would display his initial 'incompetence' (in some social circumstances) or implicitly criticize the listener's competence (in other social circumstances).

Consequences for Children

Problems in communication and interpretation. We assume that, even if adults feel constrained from making public their efforts at effecting shared understandings, most adults have cognitive resources for recognizing at least the existence of differences in lexical interpretation, if not for actually determining the nature of those differences. While the pragmatic nuances may be missed, the participants can probably at least achieve some primary interactional purpose. But for a child who is not so adept, differences in lexical meaning could be more serious obstacles to effective communication. There is considerable evidence (Shantz, 1975; Glucksberg, Krauss & Higgins, 1975) that young children often interpret communications from their own perspective without recognizing that others may have alternative interpretations. They also appear to have difficulty re-assigning an interpretation; even if the child's interpretation of one utterance doesn't make much sense in view of what else the speaker appears to have said, the child has difficulty stepping back and rationally and flexibly making sense of the discrepancy. These kinds of difficulties would be exacerbated in a situation where participants are from different cultural groups. A child may 'misinterpret' or be unable to assign any interpretation to a word, and if that happens too often, she/he may just tune out of the interaction. It is of concern to us that this may happen for many children in school.

The home-school transition. One implication of cultural variation in vocabulary use is that a child from a minority culture may well have to

master the majority's vocabulary usage. Children will have to learn both the vocabulary characteristic of their homes and that of the school. The school environment generally requires of the child knowledge of fairly conventional, middle-class, 'literal' meanings for many words. A school child needs to understand and use these words in the same way that the teacher does if she/he is to learn from participation in any teacher task. The transition from home to school for majority children may be far easier than for minority children, who have more to learn.

In fact, there is considerable support in the literature on acquisition of language that children's early language use is situation-specific. Several investigators (cf. Nelson & Brown, 1978; Shatz, 1978) report that children first learn language as limited routines with familiar others in familiar situations. With regard to vocabulary growth, a child's early lexical knowledge should then be organized in terms of the familiar situations in which he and familiar others use the words. Nelson's research on semantic development supports this view that children initially represent words according to their roles or slots in episodes and only gradually construct a semantic system decontexted from personally experienced events. Litowitz (1977), in reporting on children's abilities to define words, notes that children initially know words according to the particular situations and uses they have encountered and only gradually construct a system organized through taxonomic and modification relations. Hall and Dore (Note 1) invoke this explanation in explaining similarity in performance between children on an intelligence (vocabulary) task; when mothers administered the task and supplied their own definitions for the vocabulary items,

there were neither ethnic group nor social class differences among the children's intelligence scores.

Vocabulary Growth and Cognitive Growth

It is not unreasonable to suppose that a child's exposure to some optimal diversity of vocabulary types within a domain would have the following cognitive consequences. For one, such a child has more opportunity to learn that concepts can be represented by words, that words have the function of representing concepts. This 'metalinguistic' awareness of words as units is quite important for early reading development. Further, when she/he is engaged in the process of learning a new word, since she/he is likely to know words already which share critical conceptual bases, she/he may well learn it by a process of differentiating it from other related lexical types which he already knows, and therefore she/he will become aware of the commonalities and differences among word meanings. Thus she/he will be more likely to learn that there are domains of meaning and that these correspond to interrelated sets of lexical items. Awareness of possible organizations for knowledge would appear to be important for the learning of certain memorial and problem-solving strategies.

A child's growing knowledge of the lexicon and its organization would also be facilitated by specific experiences identifying, defining, and categorizing words as units. There is some controversy as to whether semantic organization of the type which Litowitz (1977) and Nelson and Brown (1978) describe is necessarily the most complex or 'mature' of all possible organizations but it is clear, in any case, that not all cultures

find this kind of organization particularly functional. Litowitz's "socially shared" method of defining words according to taxonomic and modification relations may in fact be a method 'shared' primarily by the middle class. A working class child may be learning how words and their referents can be used to accomplish specifiable tasks in the world. (Analyses of our mothers from Hall's study administering the Peabody Picture Vocabulary Test to their children support this claim. Lower-class white mothers, in particular, generally defined words in terms of the function of their referent, see Hall & Dore, Note 1.) A working-class child, then, may not spontaneously produce or recognize certain kinds of hierarchical relationships, because she/he has not often been asked to do so. It will take greater effort on his/her part than for a middle class child to make sense of the "standard" definitions in terms of classes and categories in school. His/her spontaneous tendency to organize lexical knowledge in terms of referent functions may have consequences for the processes by which she/he acquires new words. If nothing else, she/he will be relatively unfamiliar with the procedures of hierarchical categorization which she/he will be asked to use in school.

Words as Indicators of Cognitive Processes: Theoretical Rationale for Studying Internal State Words

One way to investigate the relation of vocabulary growth to cognitive growth is to select particular vocabulary types within one conceptual domain. "Internal state" words can be shown to map onto the domain of "meta" cognitive processes.

The prefix "meta" is used to refer generally to such cognitive phenomena as consciousness of one's knowledge as well as capacities to analyze, plan, and evaluate one's mental activities. An analogy is often made to the executor in a computer program, which is that component responsible for allocating lower-level resources for task accomplishment, overseeing task progress, and evaluating task completion. Brown (1977), in a review of the literature concerned with metacognition, acknowledges that the proliferation of 'meta' terms as prefixes for virtually any psychological term (metacognition, metabehavioral, metamemory, metalinguistic, metacomprehension, metacommunication . . .) leads one to question whether there is anything new--or at least coherent--being offered in the term. She argues that there is, that the term represents a new perspective on human intelligence. What is new is the assumption that the "essence of intelligent activity" is "conscious executive control of the routines available to the system". Intellectual functioning--for example, "deliberate learning and problem solving"--is the topic of interest, not human intelligence defined primarily in terms of its contents or its products. The "basic characteristics of efficient thinking in a wide range of learning situations" include: predicting and planning outcomes, checking and monitoring task progress, testing the reality and internal consistency of outcomes. Flavell (Note 2) makes the same argument--that the topics for study are "active monitoring and consequent regulation and orchestration of these processes in relation to the cognitive objects or data on which they bear--usually in the service of some concrete goals or objectives."

Internal state words are concerned with mental processes and states. The use of any such word (e.g., think, remember, feel, listen, etc.) is not necessarily associated with any sort of metacognitive process; nor is the verbalization of metacognitions dependent upon a lexical correlate. Nevertheless, in as much as lexical representations of mental processes and states are often used to express (if not to organize) metacognitive activities, these vocabulary types seem critical to examine. There is also a small set of words which either represent or require "meta" linguistic knowledge about words--for example, "call," "name," and "mean." Locating uses of these words helps us locate occasions where a word is defined or paraphrased, or, where a definition is provided and a word is solicited. On such occasions words are objects for analysis, and defining words is an identifiable conversational task.

Children's lives are filled with requirements for using internal state words. For example, a quick glance through just one reading series (Scott, Foresman, revised: "Reading Unlimited") makes it clear that the ability to interpret these kinds of metacognitive and metalinguistic words is critical for a child's successful participation in classroom interaction. Consider these suggestions for teacher instructions and for the teacher's role in text discussions at the first grade reading level:

> Find the word that rhymes with
> Find the word that tells how a
> Find the word that names something
> Find the word that means

Can you find a word in the second column that looks
almost like your word in the first column?
What do you call a (definition--soliciting a word)
What do you see in this picture that tells you that
What are ( ) doing that makes you think that
Why do you suppose
How does ( ) make you feel?
How would you feel?
Read the line that tells you how ( ) feels.

And so on . . . . It is reasonable to assume that if a child comes to school having had experience with these words and with these kinds of uses for these words, he will be at an advantage for school success.

In conclusion, we would like to suggest a specific hypothesis with regard to internal state words: that the use of internal state words, in conjunction with particular kinds of tasks in which these words play critical roles, can facilitate the acquisition of metacognitive processes and help the child to become an active seeker, interpreter, and user of information. Certain of our procedures are designed to provide evidence for this hypothesis.

Procedures

Types and Tokens: The Basic Units

Table 1 lists the vocabulary types that we are investigating. This list is not meant to be exhaustive of the words in these domains which can be found in our corpus; but the listing should clarify for the reader which words are of concern to us.

Insert Table 1 about here.

Making Comparisons

A coding procedure is only useful if it answers questions relevant to the investigator's concerns. One of our concerns is to make appropriate comparisons across different groups and situations. We now turn to a description of how our procedures work in this regard.

Proportions are the appropriate data with which to make comparisons across speakers and situations, since not all taped situations are of equal length and since speakers produced different amounts of talk. In the illustrative data in Table 2, we determined the proportion of each speaker's total tokens which were 'internal state' tokens. We see in

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Insert Table 2 about here.

Table 2 that our speakers used internal state words about 1 to 3 percent of the time. Although these proportions and the differences among them are small, they need not be too small for examining group differences. We did not pursue proportions for each particular internal state domain (cognitive, perceptual, affective) since in these case examples there were too few tokens in each domain to warrant even an illustrative analysis. Another way to examine specific domains is illustrated instead in Table 3. In this table we have determined, for each speaker (eventually by group) in each situation, the relative proportion of his/her total internal state tokens in each particular internal state domain. Table 3

Insert Table 3 about here.

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indicates that, at home, both TOH's mother and TOH used words from all three domains with roughly equal frequency. ROG's mother tended to use primarily cognitive words, and ROG perceptual words. While TOH and ROG both used perceptual words more than either cognitive or affective words, the greater extent to which TOH diverged from a 'preoperational' concern with external appearances and perceptual experiences appears related to the greater diversity across domains by TOH's mother as compared to ROG's mother. At school, both boys' teachers looked quite alike in this analysis, with about equal concern for cognitive and perceptual words; TOH's teacher did use a couple of affective words, ROG's teacher none, a modest difference at best but one which corresponds to differences between TOH's and ROG's mothers. The greater use of perceptual words by teachers than by mothers make sense in view of teacher's interest in encouraging sustained attentional involvement in some fairly focussed task.

The data on diversity of tokens among these three categories corresponds to the data on diversity of <u>types</u> within as well as across all three internal state domains (see Table 4). There was substantially a greater diversity

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Insert Table 4 about here.

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of affects expressed both at home and at school for TOH than for ROG, and greater diversity across all three domains as well. These data correspond to differences between TOH and ROG. The two teachers differ in this type

analysis with regard to the diversity of cognitive words used: ROG's teacher used only one cognitive word ("know") yet used it just about as often (from the token data in Tables 2 and 3) as all 5 types used by TOH's teacher. We argued earlier that exposure to a number of different types could facilitate the child's construction of differentiated and flexible domains of lexical knowledge. TOH's mother and his teacher appear to provide that kind of environment for TOH. In contrast, ROG's teacher appeared to be constricting ROG's experience with words of internal state. While both teachers are using fewer types of words than are the mothers (as would be expected from the rather focussed nature of the directed activities which were taped), ROG's teacher provided virtually no diversity at all. We might also point out that ROG's mother shows in this analysis a fairly even distribution of type diversity among the three categories, even though her token data (Tables 2 and 3) showed a preponderance of cognitive tokens. This is because several affective and perceptual words were used only once. Data like these point to the importance of looking at the data on diversity of type together with data on the frequency of use. As Keith Nelson (Note 3) has argued, the character of the adult's interactions with a child as the occasion for a child's learning language may be just as important as the frequency of use. A new word could be acquired on one occasion if it was important to the child and to the success of the interaction that she/he use it and have some kind of understanding for it. Nevertheless, it is also not unreasonable to expect that frequency of a type's use facilitates its acquisition.

TOH's mother was more concerned with feelings, emotions, and attitudes than was ROG's mother. Similarly, TOH's teacher displayed at least some concern with affect--ROG's teacher none. These data correspond, as one would predict, with the children's vocabulary. TOH used words concerning affects both at home and at school--ROG neither. Would a child whose mother and teacher were concerned with affects and attitudes be at any advantage when he entered school? At first one might think that these affective concepts are essentially irrelevant to traditional academic tasks and to our concern with metacognitive processes. But there are two ways in which they are quite fundamental to school performance. The first has to do with the child's growing concepts of personal attitudes towards tasks and accomplishments. A child who is learning about internal states and their relation to external states and interactions has opportunity to learn to recognize and evaluate his own motivations for doing things. School, then, could be experienced and 'accomplished' in a more personal, independent, and self-defined way for such a child than for a child who is less knowledgeable or aware of feelings and motivations. The second has to do with critical school skills related to reading comprehension. While 'learning to read' might seem a dry, impersonal school task, in fact what is asked of a child are complex interpretations of characters' thoughts, feelings, and intentions. Having learned to recognize these in himself and those close to him would facilitate his learning to do so for characters in stories. Such a child would more easily interpret 'beyond the information given' and concern himself with underlying personal and interpersonal

dimensions of characters' actions. Our data for TOH, then, suggest that he will be at an advantage for these kinds of interpretive school tasks as compared to ROG. This would be the case even if it were not for the additional burden upon ROG, much of the time, to transform the story content from themes predominant in the majority culture to ones that are familiar and interpretable to him. If anything, ROG needs a teacher with particular concern to develop his skills for these kinds of affective and intentional interpretations, and instead he has a teacher who (in these data) shows no concern with such tasks.

Semanticity: The Second Step

Once tokens are located, they are then coded for what we have glossed as 'semanticity', i.e., the relation of the word's meaning to the utterance meaning as a whole.[2] These codes can be seen in Table 5. The general motivation for these codes is the following question: If you examine the

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Insert Table 5 about here.

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word in the context of the utterance, how critical is it that the child interpret any meaning for the word in order to assign a reasonable interpretation to the utterance? There are what we are calling 'pragmatic uses' for these words, in which the semantic content concerned with internal states is not contributing to the topical focus of the proposition, and so the utterance meaning may be quite interpretable without understanding the internal state words. Consider such common 'pragmatic' uses for the cognitive verbs 'know' and 'think' as exam questions ("Do you know what

this is?"), dubitatives ("I don't think the elevator's running"), and indirect requests ("Do you think you could just take the garbage out?").[3] Similarly, there are conversational devices for cognitive verbs, such as rhetorical questions ("You know what?") or tags (". . ., you know"), which have an interactional function in securing and maintaining a listener's involvement, and that interactional function overrides any topical concern with the listener's internal states. For vocabulary representing perceptual processes and experiences, there are also 'pragmatic' uses, for example, attentional devices. Even though attentional devices must be understood by the listener as requesting a certain kind of attention, they are not likely to be occasions for the listener to reflect upon perceptual processes--upon listening, looking, touching, and so on. For vocabulary representing affective states, there are 'pragmatic' uses designed to mitigate requests, offer excuses, and so on: for example, "I'm afraid I didn't think of it," where the speaker's fear is hardly at issue. (There do not appear to be any pragmatic uses for lexical definition vocabulary, and therefore these vocabulary types are not included in these analyses.)

In general, it is unusual for discourse in which pragmatic uses occur to display any grammatical orientation to the (standard) meanings of the internal state words used. Accordingly, we would not expect pragmatic usage to do much in the way of facilitating the child's understanding of mental processes or states.

In contrast, 'semantic uses' are codes for those utterances in which internal state words are intended to contribute topical content. 'Reflections' are those uses which appear to call explicitly for metacognitive abilities--for example, "How did you know . . . ." or "I realized that if I could just remember . . . . ." When internal state words are used as reflections, generally their content (thinking, remembering, knowing, . . .) contributes to the discourse topic. 'Genuine expressions' of internal states also contribute substantial content, yet it is usually the object of the internal state which becomes the topic (what one was thinking about).

Coding a 'pragmatic' use for words of internal state in hedges, examination questions, attentional devices, and many conversational devices is not tantamount to arguing that these words carry no 'meaning.' Determining precisely 'what' and 'how much' meaning such a word conveys requires a fuller account of the speaker's purposes in the discourse; paralinguistic cues (stress, condensation) accompanying the utterance are often critical devices for signaling the focus of the proposition. The extent to which a lexical item carries 'semantic' meaning is multi-determined and should ultimately be viewed more as a dimension of 'semanticity' than the 'semantic' vs. 'pragmatic' dichotomy we have introduced here.

Nevertheless, the distinction between 'pragmatic' and 'semantic' usage should prove quite useful in comparing our four groups. The codes make possible a variety of analyses. Consider as illustrations some data from the two children we described earlier. Table 6 indicates, for each speaker, the proportion of his/her internal state tokens which were coded as having a 'semantic', as opposed to a 'pragmatic', function. In other words,

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Insert Table 6 about here.
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the table describes, for each speaker, the frequency with which, roughly-speaking, a 'literal' meaning for the internal state word was essential to an utterance's meaning. There are consistent differences between the children's teachers. The TOH data show these speakers primarily using these words to express some 'literal' meaning. The ROG speakers were using these words for 'pragmatic' functions almost as often as for 'semantic' functions.

These differences can be seen as well when we look at speaker turns. Table 7 reveals the proportion of speaker's turns which contained at least one word of internal state (or lexical definition) used in any way (i.e., without regard for 'semantic' vs. 'pragmatic' usage). The TOH data, as

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Insert Table 7 about here.
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compared to the ROG data, show the greater frequency with which these words were included in the turns of TOH speakers as compared to ROG. Table 8 displays the frequency with which a speaker included in his turn an internal state word used 'semantically'. TOH adult speakers used internal state

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Insert Table 8 about here.
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words semantically in approximately 15-18 percent of their turns, as compared to 10 percent for ROG's mother and 6 percent for ROG's teacher. Correspondingly, TOH used an internal state word semantically in roughly seven

percent of his turns, as compared to 2-3 percent for ROG. These data suggest that explicitly expressed concern with mental states and activities is far more frequent in one child's world than in another's. In these data, TOH had more opportunity than did ROG to learn the meanings of words in these domains. These are, then, illustrations of the kinds of cultural differences we intend to examine by group.

Lexical Meaning: Step Three

Dictionary readings. We are currently developing procedures to map 'semantic' tokens onto corresponding conceptual domains. One of our methods has been to assign each 'semantic' token a dictionary reading. The intent here is to determine first if a token can be standardly defined and, secondly, the diversity of readings with which any type is used. We have already discovered that standard definitions are very difficult to assign to these words when they are used 'pragmatically'. Since 'pragmatic' usage does not contribute to the propositional focus, the meaning is often vague or ambiguous. It makes sense, then, just to code 'semantic' tokens, and we have found that dictionary definitions can be reliably assigned to these.

However, dictionary definitions have given us only a rough idea of the diversity of meanings for which a word is used and of the relations among these meanings. Lexicography is not really a concern with a theory of meaning nor its psychological reality. For example, how different is one dictionary reading from another? Can a token mean more than one reading in any one utterance? Often more than one reading is consistent with (the

coder's interpretation of) the utterance's meaning. This is probably no fault of the dictionary but rather a property of communication, that meanings are as precise as they need be for all practical purposes and that may not be very precise at all (cf. Garfinkel & Sacks, 1970). This method offers at best only a rough indication of the relations among types for any given speaker. One speaker may, for example, use words like 'think', 'know', 'believe', 'am certain/sure', 'guess' to express fairly explicit beliefs about his knowledge. At times, however, he may use potentially general words like 'think' or 'know' to express implicitly as many underlying concepts as our first speaker who does (at times) use explicit types. Still another speaker may use only general words in very general ways and appear to lack the differentiated concepts which characterize the first two speakers. We would predict that a child's potential for learning these concepts, then, would vary correspondingly with the speaker's explicit, implicit, or nonexistent expression of them.

We have described our dictionary method, yet we are not in fact convinced of its usefulness for the lexical domains which we have chosen for this particular vocabulary study. If the method is useful, it may be more suitable for words with tangible referents--physical concepts, spatial, and even temporal concepts which appear to have more clearly articulated meanings than do words of internal states. It does seem that a linguist's or a psycholinguist's analysis of a vocabulary domain would, in any case, be preferable to dictionary entries as sets of possible readings for each type. For words of internal state, dictionary codings proved very

time-consuming, multiple codings were common, achieving reliability involved considerable negotiation over the meanings of the dictionary readings. "Internal state" concepts are subtle.

Mental Activities: Toward Higher Level Units

It seems more profitable, for words of internal state, to pursue characterizations of the mental states and activities critical to the ongoing discourse in which a token is found. We can either locate, as a first step, 'semantic' uses of internal state words and then attempt a description of the mental states and cognitive activities for which the word is used. Adults often use these words with children, for example, to get them to engage in some sort of cognitive activity or to interpret for them their current mental state. Or, instead, we can first go through the transcripts and locate candidates for classes of mental activities (whether or not internal state words occur) and then examine what kinds of words are used to communicate and carry out that task. Are words used--for example, "remember", "imagine", "guess"--which help the children construct a concept of that particular mental activity? These two approaches would really be part of more ambitious projects (see Hall, 1978) which are concerned with levels of description higher than the lexical item. Mental activities of course do not necessarily require the use of internal state words, so these kinds of analyses will go far beyond this particular vocabulary study. We offer here from our data illustrative examples of possible categories for the use of mental state words in conjunction with some mental activity. (Note: words underlined represent semantic use of an internal state word.)

Mothers: Interpreting child's internal state; occasioned by the child's spontaneous behavior or expression, and therefore mother provides a lexical match to child's experience.

Mo /TOH/ That's very neat . . very neat, right T---? You're concerned about dirtying yourself.

Mo /TOH's father / T-- doesn't feel like eating that.
TOH's Bro You see, now they stink.
Mo L -- what's the matter? What are you angry about? What, are you angry with Rachel? Are you angry with Rachel?
Bro Yes.

Mothers: Reporting her own internal state in order to acknowledge and praise child (here, for a practical skill).

TOH I could open it.
Mo I know you can.

TOH I did it again.
Mo oh oh I didn't see.
TOH I opened the door again.
Mo oh T----. I know you can, but there's nothing out there now.

Mothers: Attributing knowledge to child? occasioned by a child's misdeed but not by any critical mental activity corresponding to the lexical concept. The attribution of knowledge is used to insist that the child use that knowledge.

Mo A napkin what T---?
TOH I hate that word. I'm not saying it.
Mo You know how to ask for something.

Mo(ROG) Now you don't eat like that an you know it.

Mo(ROG) I think that / remember who's / you keep forgetting something (napkin)

Mothers and Teachers: Reporting her own internal state? occasioned by a child's misdeed or non-deed. The 'report' of own internal state (or lack thereof) is used to imply pragmatically what internal state ought to exist but now doesn't--to request correction of misdeed.

Mo (ROG) I didn't hear you say thank you.

T(ROG) I didn't hear you sing.

T(ROG) I can not hear you when you--when she's talking.

Mothers: Requesting a cognitive activity (reflection, consideration, recall . . .) in order to teach a social principle.

Mo(Bro) . . . You can do as you please. You can wash your hands or not but just remember though, you do have to eat with your dirty hands.

Mo(Bro) . . . if you have to express yourself in that way, it sounds bad, and everybody's going to be against you, you know what I mean?
Bro Yes.

Child: Reflecting upon and reporting an acquired skill (or lack thereof)

TOH: I don't know how to do dat. (here, a response to a T-request).
T I'll tell you the letters, okay.

ROG I know how to do mine. Oh, I want a little bit.

ROG I didn't know how to say Pizza Pie Man. I try to say it Pizza Pie Land.

Teachers: Requesting that a child display his knowledge (here, relatively rote recall of information).

T You know where you live R-----? You know your address? You live in an apartment house, don't you? ("know" was assigned a 'semantic' use on the basis of prior discourse context and stress on "know").

T Look at this and tell me what goes (XXX), what goes to (XXX)?
ROG I know da da boat.

Teachers: Requesting that the child reflect upon and report his mental state.

T How did you look when you were asleep, R----?
ROG Sad.
T You looked real sad, why?

Teachers: Reporting own internal state in order to extend and elaborate the child's own mental activity, encouraging child to build upon what he is thinking, feeling, and doing by offering her own interpretations in dialogue with the child.

TOH Touch him.
T I'm afraid. I don't know if I want to touch him. What's he going to do to me if I touch him?
TOH He bites and tickles.

T I'm scared. You frighten me.

T(TOH) I can't believe your Stanley the snake just ate the dog.

T(TOH) You mean, if I said to you, if you were a servant go jump in the lake, you would go jump in the lake?

This last example is one where a mental activity--recalling a personal experience--defined the conversational purpose, yet words of internal state were not used (e.g., "remember", "recall", "memory") to name that activity. Nor were words of internal state used to explore personal attitudes and feelings toward the experience.

Mo(ROG) She's on the same floor you was on year before last.
ROG Ss . . . Seventeen? Seventeen das the one I was on? Wha what hap--
Mo Why don't you tell Carl about the time you was in the hospital. An tell Carl . . . tell Carl what was goin in your hand.
ROG Needle.
EXP Is that right?
ROG yep. an eh yep, I w' cryin.
EXP I can believe that. I'd be crying too.
ROG I was screamin
Mo Tell tell Carl they had you layin on this cold thing. And they call that the ice mattress, right?
ROG Yeah dey had to do everything. I I was gonna sit up an pop it, an smack em in na mouth.
Mo No you wasn't gonna do that the doctors was tryinna help you, right?
ROG no-o, it's stupid.
Mo I couldn't say the doctors are stupid.

It will be of interest to determine the occasions in which mothers and teachers introduce and use specific lexical items. Of critical interest will be those occasions in which: a lexical item is a match (ideal for learning) or a mismatch to some corresponding mental activity; the occasion for a lexical item is the child's spontaneous mental activity; a lexical item is used to misrepresent a mental state or activity (the child's or anyone else's).

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Footnotes

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[1]The listing of authors for this paper is alphabetical. The preparation of this paper was a joint enterprise.

[2]The 'semantic'--'pragmatic' distinction introduced here is intended more as metaphor. We recognize that semantic (structural or grammatical aspects of meaning) and pragmatic (inter-sentential and contextual aspects of meaning) factors operate in the use and interpretation of any utterance.

[3]Actually, criteria for a 'pragmatic' usage include paralinguistic cues and the context of the utterance as well as its syntactic form. However, these examples are such that the reader can quite easily imagine these utterances being used as described.

Table 1

Categories of 'Internal State' Vocabulary

With Examples of Possible Types

Verbs	Nouns	Adjectives
Cognitive		
know	knowledge	certain
know how		
think	thought	thoughtful
believe	belief	believable
understand (see) (get)	understanding	understanding
wonder		
imagine	imagination	
guess	guess	
make sure		sure
suppose		
doubt	doubt	doubtful
remember	memory	
recall		
forget		forgetful
realize		
(pretend)		
(learn, pick up)		
remind	reminder	
dream	dream	
(appear)	(appearance)	
(seem)		
Perceptual		
see	sight	
look	look	
(appear)	(appearance)	
(seem)		
watch		
hear		
listen	sound	
touch		
(feel)		
taste	taste	
smell	smell	smelly

Table 1 (Continued)

Affective

frighten	fear	afraid, scared
	anger	angry
like	like	
love	love	loving
hate	hate	
bother		
(feel)	feeling	
hope	hope	hopeful
(stand)		
	comfort	comfortable
	(bad) mood	
	concern	concerned
		sorry
	worry	worried
		upset

A 'Metalinguistic' Category: Lexical Definition

(call)	
(name)	name, word
(mean)	
(stand for)	

Table 2

Distribution of Internal State and Lexical Definition Tokens for ROG and TOH Speakers at Home (Dinner) and at School (Directed Activity), With Proportion of Total Internal State Tokens Over Total Tokens for Each Speaker

ROG[a]			Speaker		
	Situation	Vocabulary Domain	Child	Mother	Teacher
	Dinner	cognitive	3	28	
		perceptual	21	5	
		affective	0	5	
		(lexical)	(0)	(0)	
Total internal state tokens/ Total tokens			$\frac{24}{1036} = .02$	$\frac{38}{1576} = .02$	
	Directed Activity	cognitive	1		8
		perceptual	6		11
		affective	1		0
		(lexical)	(1)		(1)
Total internal state tokens/ Total tokens			$\frac{8}{451} = .02$		$\frac{19}{92} = .02$

Table 2 (Continued)

TOH[a] Situation	Vocabulary Domain	Speaker: Child	Mother	Teacher
Dinner	cognitive	5	28	
	perceptual	14	18	
	affective	4	28	
	(lexical)	(2)	(0)	
Total internal state tokens/ Total tokens		$\frac{23}{1222}$ = .02	$\frac{74}{2199}$ = .03	
Directed Activity	cognitive	1	10	
	perceptual	5	12	
	affective	4	2	
	(lexical)	(0)	(0)	
Total internal state tokens/ Total tokens		$\frac{10}{693}$ = .01	$\frac{24}{1154}$ = .02	

[a]Code names for subjects.

Table 3

For Each Speaker (x Situation), the Proportion of Total 'Internal State' Tokens in Each Particular 'Internal State' Domain (Cognitive, Perceptual, Affective)

	Situation	Vocabulary Domain	Speaker: Child	Speaker: Mother	Speaker: Teacher
ROG	Dinner	cognitive	.13	.74	
		perceptual	.87	.13	
		affective	.00	.13	
			(N=24)	(N=38)	
	Directed Activity	cognitive	.12		.42
		perceptual	.75		.58
		affective	.12		.00
			(N= 8)		(N=19)
TOH	Dinner	cognitive	.22	.38	
		perceptual	.61	.24	
		affective	.17	.38	
			(N=23)	(N=74)	
	Directed Activity	cognitive	.20		.42
		perceptual	.50		.50
		affective	.40		.08
			(N=10)		(N=24)

Table 4

Distribution of Internal State Types for ROG and TOH Speakers at Home (Dinner) and at School (Directed Activity)

ROG

Situation	Domain	Speaker: Child	Mother	Teacher
Dinner	cognitive	2	6	
	perceptual	3	4	
	affective	-	4	
	lexical	-	1	
	TOTAL	5	15	
Directed Activity	cognitive	1		1
	perceptual	4		4
	affective	-		
	lexical	-		
	TOTAL	5		5

Table 4 (Continued)

TOH

Situation	Vocabulary Domain	Speaker		
		Child	Mother	Teacher
Dinner	cognitive	3	9	
	perceptual	5	5	
	affective	3	11	
	lexical	-	1	
	TOTAL	11	26	
Directed Activity	cognitive	1		5
	perceptual	3		4
	affective	1		2
	lexical	-		-
	TOTAL	5		11

Table 5

"Semanticity" of Usage For Internal State Words

Cognitive

'Semantic' uses

A. Reflections, assertions, and requests for reflections upon one's knowledge, beliefs, cognitive processes, capacities, etc. . . . These uses are usually coordinated with topic development. That is, the reflection upon mental states or processes is the focus of a proposition which contributes to the topical organization of one or more conversational sequences.

B. Genuine expressions of knowledge, beliefs, cognitive processes, capacities, etc. which support some other interactive task and are not used to establish a topic concerned with cognitive states or processes.

'Pragmatic' uses

C. Hedges; dubitatives; etc. Especially 'think' but also other of the more general verbs in this category are used with predicate complements to express some attitude toward the complement proposition, but the use for such expression may be better characterized as a 'pragmatic' use rather than a genuine expression of some internal state. Often the 'main clause' (e.g., "I think") is not the focus of the utterance. It could even be deleted and the utterance would still make sense; some essential purpose of the utterance would remain stable; topical organization would remain coherent, and so on. These may also be constructed as tags ("e.g., . . ., I think" or " . . ., I guess").

D. Exam questions. Many examination questions have the form of a yes-no request for information about the hearer's knowledge--for example, "Do you know what this is?" but in fact are conventionally used as WH-requests.

Table 5 (Continued)

E. Conversational devices - for example:
   1. speaker-selection techniques, such as tags (". . . you know?", ". . . do you know?", " . . . remember?", " . . . do you believe?").
   2. acknowledgements and back-channel responses--("mm I know", "I see").
   3. mannerisms -- scattered throughout a speaker's turn, functioning as pause-fillers or as minimal (probably unconscious) efforts to maintain listener's attention (" . . . you know . . . .").

Perceptual

'Semantic' uses

A. Reflections (assertions and request for reflections) upon one's perceptual and sensory experiences and processes. These uses are usually coordinated with topic development. That is, the reflection upon mental states or processes is the focus of a proposition which contributes to the topical organization of one or more conversational sequences.

B. Genuine expressions of perceptual and sensory experience which support some other interactive task and are not used to establish a topic concerned with same.

'Pragmatic' uses

C. Attentional devices (request for attention)--e.g., "look", "watch", "listen".

D. Conversational mannerisms--scattered throughout a speaker's turn, functioning as pause-fillers or as minimal (perhaps unconscious) efforts to maintain listener's attention (e.g., " . . . see . . .", " . . .look . . .").

Table 5 (continued)

Affective

'Semantic' uses

A. Reflections (assertions and requests for reflections) upon one's affective states and processes. These uses are usually coordinated with topic development. That is, the reflection upon affective states or processes is the focus of a proposition which contributes to the topical organization of one or more conversational sequences.

B. Genuine expressions of affective states and processes which support some other interactive task and are not used to establish a topic concerned with same.

'Pragmatic' uses

C. Conversational devices--Primarily acknowledgements and back-channel responses ("let's hope so" or "I feel that way too").

Table 6

Proportion of Internal State Tokens (For Each Speaker) Which Were Semantic Uses, i.e., Genuine Expressions or Reflections

		Speaker		
	Situation	Child	Mother	Teacher
ROG				
	Dinner	.25 (N=24)	.58 (N=38)	
	Directed Activity	.50 (N=8)		.53 (N=19)
TOH				
	Dinner	.83 (N=23)	.75 (N=74)	
	Directed Activity	.91 (N=11)		.67 (N=36)

Note. N = total tokens of internal state.

Table 7

Proportion of All Turns (For Each Speaker)

Which Contained at Least One Word of Internal State

		Speaker		
	Situation	Child	Mother	Teacher
ROG				
	Dinner	.09 (N=273)	.16 (N=203)	
	Directed Activity	.06 (N=174)		.11 (N=174)
TOH				
	Dinner	.09 (N=249)	.24 (N=310)	
	Directed Activity	.08 (N=143)		.21 (N=124)

Note. N = total speaker turns.

Table 8

Proportion of All Turns Which Contained a Semantic Use

(i.e., Genuine Expression or Reflection) of Some Internal State Word

		Speaker		
	Situation	Child	Mother	Teacher
ROG				
	Dinner	.03 (N=273)	.10 (N=203)	
	Directed Activity	.02 (N=174)		.06 (N=174)
TOH				
	Dinner	.08 (N=249)	.15 (N=310)	
	Directed Activity	.06 (N=143)		.18 (N=124)

Note. N = total speaker turns.

APPENDIX

Table A

Dinner--ROG--Mother

	SEMANTIC		PRAGMATIC			
COGNITIVE	Genuine Reflections	Genuine Expressions	Hedges; Dubitatives	Conversational Devices	Exam Questions	Others
forgetting	-	1	-	-	-	-
know	-	4	-	4	-	1
know (how to, the way to)	-	1	-	-	-	-
remember	-	3	-	-	-	-
see	-	1	-	4	-	-
think	-	4	3	1	-	-
thought	-	1	-	-	-	-

Table A (Cont'd)

Dinner--ROG--Mother

	SEMANTIC		PRAGMATIC		
PERCEPTUAL	Genuine Reflections	Genuine Expressions	Attentional Devices	Conversational Mannerisms	Others
hear	-	-	-	-	1
look	-	-	1	-	-
looks like	-	1	-	-	-
see	-	1	-	-	-
watch	-	1	-	-	-

	SEMANTIC		PRAGMATIC		
AFFECTIVE	Genuine Reflections	Genuine Expressions	Hedges	Conversational Devices	Others
comfortable		2			
hope					1
like		1			
sorry					1
	21		17		

.58%
are genuine expressions
semantic usage

47

LEXICAL	
call	1

Table A (Cont'd)

Dinner-ROG

	SEMANTIC		PRAGMATIC			
COGNITIVE	Genuine Reflections	Genuine Expressions	Hedges; Dubitatives	Conversational Devices	Exam Questions	Others
know how to	1?					1
thought		1				

	SEMANTIC		PRAGMATIC		
PERCEPTUAL	Genuine Reflections	Genuine Expressions	Attentional Devices	Conversational Devices	Others
hear		3			
hears					1
look			2		
look like		1			
see		1	4		10
		6		18	

.25%
are genuine expressions
semantic usage

Table B

Dinner--TOH--Mother

	SEMANTIC		PRAGMATIC			
COGNITIVE	Genuine Reflections	Genuine Expressions	Hedges; Dubitatives	Conversational Devices	Exam Questions	Others
forget		4				
know		3		2		
know (how to)		2				
make sure		1				
mean		2		1		
realize		1				
remember		1				
see		3		3		
think		1	1			
thought		1				
understand		2				

Table B (Cont'd)

Dinner--TOH--Mother

	SEMANTIC		PRAGMATIC		
PERCEPTUAL	Genuine Reflections	Genuine Expressions	Attentional Devices	Conversational Mannerisms	Others
heard		4			
listen			4		
look		1	2		1
see		4			1
watch		1			

Table B (Cont'd)

Dinner--TOH--Mother

	SEMANTIC		PRAGMATIC		
AFFECTIVE	Genuine Reflections	Genuine Expressions	Hedges	Conversational Devices	Others
afraid			2		
anger		1			
angry		6			
bad mood		1			
bothers		1			
concerned		1			
excited		1			
feel		1			
like		9			
love					1
pleasant		1			
sorry					1
upset		1			
worry		1			
LEXICAL					
call	2				
	55		19		50

75%
Genuine expressions
Semantic usage

Internal State Words

Table B (Cont'd)

Dinner--TOH--

	SEMANTIC		PRAGMATIC			
COGNITIVE	Genuine Reflections	Genuine Expressions	Hedges; Dubitatives	Conversational Devices	Exam Questions	Others
forgot		1				
know		1				
know how to		2				
thought		1				

	SEMANTIC		PRAGMATIC		
PERCEPTUAL	Genuine Reflections	Genuine Expressions	Attentional Devices	Conversational Devices	Others
hear		1			
heard		1			
look			4		
saw		1			
see		2			
taste		1			
watching		4			

Table B (Cont'd)

	SEMANTIC		PRAGMATIC		
AFFECTIVE	Genuine Reflections	Genuine Expressions	Hedges; Dubitatives	Conversational Devices	Others
hate		1			
like		2			
scared		1			
		19		4	
		.83			

Table C

ROG--Directed Activity--Teacher

	SEMANTIC		PRAGMATIC			
COGNITIVE	Genuine Reflections	Genuine Expression	Hedges; Dubitatives	Conversational Devices	Exam Questions	Others
know		1		1	5	
knows		1				

	SEMANTIC		PRAGMATIC		
PERCEPTUAL	Genuine Reflections	Genuine Expressions	Attentional Devices	Conversational Devices	Others
hear		4			
listen		1			
look	1		1		
looked	1				
looking			1		
see		1	1		
	10			9	
	.53 genuine 'semantic' usage				
LEXICAL					
called	1				

53 Internal State Words

Table C (Cont'd)

ROG--Directed Activity

	SEMANTIC		PRAGMATIC			
COGNITIVE	Genuine Reflections	Genuine Expressions	Hedges; Dubitatives	Conversational Devices	Exam Questions	Others
know		1				

	SEMANTIC		PRAGMATIC		
PERCEPTUAL	Genuine Reflections	Genuine Expressions	Attentional Devices	Conversational Devices	Others
listening		1			
look			2		
see		1	1		
watch			1		

	SEMANTIC				
AFFECTIVE	Genuine Reflections	Genuine Expressions			
like		1			
	4		4		
	50%				

Internal State Words

54

Table D

TOH--Directed Activity--Teacher

	SEMANTIC		PRAGMATIC		
COGNITIVE	Genuine Reflections	Genuine Expressions	Hedges; Dubitatives	Exam Questions	Other
believe		1			
know 1	1	4	1	1	
mean	1				
think			2		

	SEMANTIC		PRAGMATIC	
PERCEPTUAL	Genuine Reflections	Genuine Expressions	Attentional Devices	Other
listen			1	
look		2	4	
looks		2		
looking		4		
looks like		1		
see		4	2	1
touch		2		
AFFECTIVE				
afraid		1		
frighten		1		
	24		12	55

67%
Genuine expressions

Internal State Words

Table D (Cont'd)

TOH--Directed Activity

COGNITIVE	Genuine Reflections	Genuine Expressions	
know how to		1	

PERCEPTUAL	Genuine Reflections	Genuine Expressions	Attentional Devices
look		1	1
see		3	
touch		1	

AFFECTIVE	Genuine Reflections	Genuine Expressions	
like		4	
	10		1
	91% genuine		

Internal State Words

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